

Claims

1. A linear drive having a cylinder, a piston guided displaceably in said cylinder, and a pinion, said piston being provided with teeth which can engage into said pinion in order to rotate said pinion upon displacement of said piston,
5 and having at least one deformable element which prevents blocking when said teeth enter into engagement with said pinion.

2. The linear drive according to Claim 1, wherein said deformable element is formed by a pre-fixing body which is preferably arranged in front of a first tooth of said teeth.

10 3. The linear drive according to Claim 1, wherein said deformable element is formed by pre-fixing bodies which are arranged in front of all of said teeth of said pinion.

4. The linear drive according to Claim 2, wherein said pre-fixing body is elastically deformable.

15 5. The linear drive according to Claim 3, wherein said pre-fixing bodies are elastically deformable.

6. The linear drive according to Claim 2, wherein said pre-fixing body is able to be sheared off when said teeth of said piston enter into engagement with said teeth of said pinion.

20 7. The linear drive according to Claim 3, wherein said pre-fixing bodies are able to be sheared off when said teeth of said piston enter into engagement with said teeth of said pinion.

8. The linear drive according to Claim 1, wherein said deformable elements are formed by deformable tooth tips of said pinion.

25 9. The linear drive according to Claim 1, wherein said deformable element is arranged on said teeth of said piston.

10. The linear drive according to Claim 79 wherein said deformable element is formed by a plastically deformable run-in section of said teeth of said piston.

11. The linear drive according to Claim 9, wherein said deformable element is formed by a deformable spring element which is placed in front of said teeth of said piston.

12. The linear drive according to Claim 1, wherein an output element is provided and said deformable element is provided between said output element and said pinion where it allows said pinion a play with respect to said output element.

13. The linear drive according to Claim 12, wherein said pinion has a bore with inner teeth into which outer teeth of said output element engage.

14. The linear drive according to Claim 12, wherein said output element has a recess with inner teeth into which outer teeth of said pinion engage.

15. The linear drive according to Claim 10, wherein said deformable element is situated in a gap space between said inner teeth and said outer teeth.

16. The linear drive according to Claim 1, wherein at least a portion of said teeth of said piston is constructed on a separate tooth segment and said deformable element is arranged between said tooth segment and said piston.

17. The linear drive according to Claim 16, wherein between said tooth segment and said piston a gap is provided, which, in the case of a displacement of said piston, allows a play between piston and pinion.

18. The linear drive according to Claim 12, wherein said deformable element consists of an elastic body.

19. The linear drive according to Claim 12, wherein said deformable element consists of a plastically deformable body.

20. The linear drive according to Claim 1, wherein said piston is produced as a die cast metal part.

21. A belt retractor with a belt spool and with a belt tensioner which has a linear drive according to Claim 1.

5 22. The belt retractor according to Claim 21, wherein said pinion is coupled with said belt spool.

23. The belt retractor according to Claim 22, wherein said belt spool has an undulating extension on which said pinion sits.

24. The belt retractor according to Claim 21, wherein said pinion has a flange
10 which engages into a recess on said belt spool.

25. The belt retractor according to Claim 1, wherein a housing is provided in which both said cylinder and also bearing sites are formed in one piece on both sides of said pinion.

26. The belt retractor according to Claim 1, wherein said housing is produced
15 as a die cast metal part.